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Press Release

DEER EXPERT QUESTIONS SUCCESS OF MANAGEMENT

After 75 years of management, white-tailed deer populations and habitat quality are declining! One of the nation's top deer biologists offers some strong opinions as to why this is happening, and how to fix the problems.

Nacogdoches, Texas, July 7, 2014: The 2013 deer hunt once again was a disappointment to many hunters across the nation, as deer numbers and habitat conditions continued to deteriorate. Since the late 1980s, Dr. James C. Kroll (aka "Dr. Deer), one of the world's top deer authorities, has warned this would happen under what has become known as Traditional Deer Management. "The whitetail has been considered the crown jewel of North American wildlife management," says Kroll, "but if we do not make significant changes in our approach to deer management soon, the jewel may turn out to be a cubic zirconium!" And, Kroll is not the only one concerned about the future of deer and deer hunting. Other respected biologists and outdoor writers also are reporting declining deer numbers. In 2008, Dr. Grant Woods predicted, "I think we're nearing a crisis mode. The best-case scenario is that deer populations drop 10 to 25 percent over the next couple years." NRA American Hunter Magazine writer, Frank Minitar, noted "Some wildlife biologists worry the whitetail, the backbone of American hunting, is running tail-flagging for a crash." Both Kroll and Woods already are seeing their predictions come to true. The whitetail population in the U.S. has declined by almost 13% in the last five years. At least 31 states now have reported declining harvests, and not just for whitetails. Mule deer and black-tailed deer numbers are plummeting at an even faster rate. Yet, some experts do not agree with these dire predictions. Quality Deer Management Association CEO, Brian Murphy feels differently. "We're just entering a period many didn't foresee," he says. "Instead of the surging whitetail numbers of the 1990s and early 2000s, we're seeing stable to slightly declining populations in many regions as populations fall in line with habitat." Kroll does not see it that way. "I never have seen a single deer herd reach a stable condition," he responds, "deer herds and habitats are too dynamic for that to happen, to assert otherwise is to misunderstand the basic biology of the species!" In spite of disagreement on the seriousness of the situation, most deer herds indeed are declining, harvest numbers are down, herd losses to diseases are up, hunters are increasingly unhappy, and habitat quality appears to be suffering as collateral damage.

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Needless to say, the professional wildlife management community has not exactly accepted these warnings with open arms. To question effectiveness of management efforts cuts straight to the heart of North American wildlife restoration and management. Kroll made himself unpopular with what he calls “the wildlife management establishment” as early as the late 1980s, when he first began writing about his concerns in technical and popular literature. Yet, some professionals were listening. In 1994, Dr. Kroll and Dr. Harry Jacobson (Emeritus Professors at Stephen F. Austin State University and Mississippi State University, respectively) were invited to Edinburgh, Scotland to deliver the first of many unheeded warnings to the Third International Congress on the Biology of Deer. Their paper, entitled “The White-tailed Deer: the most managed and mismanaged species,” focused on how traditional deer management was not controlling deer populations, resulting in significant habitat damage and disease issues. They did not paint a very rosy picture for whitetails without a significant change in management strategies. Jacobson and Kroll also pointed out the problems were complex and varied by state, each with a unique combination of causal factors.

Shortly after the Jacobson-Kroll presentation at Edinburgh, interestingly enough many states ceased reporting population estimates, opting instead to continue annual harvest estimates. Management success was being measured by the number of deer taken each season, rather than progress toward maintaining more natural deer herds; viz., herds with balanced age and sex structure living in balance with the productive capacity of habitats. During the 1980s and 90s agencies happily reported “Record Harvests” after each season, raising public opinions about management success. Unfortunately, by 2000 they became concerned about run-away population growth and began implementing measures, often drastic, to increase antlerless harvest. Kroll compares controlling population growth to stopping a high-speed train. “On the train ride from Edinburgh back to London,” he continues, “I asked the conductor how they managed to stop a train going almost 200 mph?” He explained that they would begin stopping the train about 90 miles from the London station. That conversation solidified Kroll’s feelings about deer management. “By the time states started to react,” says Kroll, “it already was too late to bring growth into regulation. The herd ran right past the station!”

Kroll asserts there are two basic questions: 1) What factors caused population decline? and 2) Why were agencies caught by surprise? Dr. Kroll has likened deer management to a three-legged stool; one leg represents herd management, another habitat management and the last people management. The reason for the three legs is obvious. All three are co-equal, removing one will cause you to fall. So, he feels sound whitetail management **must** involve attention to all three, especially the people aspects of wildlife management. Although the reasons for herd decline in each state may differ, one state (Wisconsin) probably serves as the best model for explaining how we came to this point.

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Apparently, Governor Scott Walker was listening, as in 2011 he appointed Kroll as the nation's first "Deer Trustee." Public outcry against efforts by the Wisconsin DNR to manage deer herds solely through regulating harvest had eroded public confidence in the agency's ability to provide sustained deer hunting, in a state where it

has been said there are two religions-- the Green Bay Packers and deer hunting! Kroll put together a team with two experienced and respected deer managers; Drs. David Guynn (Clemson University) and Gary Alt (ex-Pennsylvania deer program leader). Dr. Guynn is the acknowledged creator of deer management assistance programs and Alt is a bear biologist appointed by Governor Tom Ridge (Pennsylvania) to "fix" the whitetail situation in the Key Stone state.

Reaction to this appointment by other professional biologists was immediate and harsh! "Wildlife management is about science," one deer program leader asserted, "there is no place for politics in deer management!" Yet, quality science **is** about peer-review and Walker simply had established a peer-review team to assess the quality of science and management. "I had never met Walker," Kroll points out, "but, I was impressed that he or no one on his staff made any attempt to influence or bias our report." In fact, that was one of the conditions for accepting the assignment; they would work totally independent from any outside influences, no matter the final opinions.

A little less than a year into the assignment, the Trustee Team issued its blockbuster report; one very critical of the DNR's approach to deer management. It did not take them long to isolate the real causes of the problem. Kroll uses the acronym AKA to represent the problems identified in the Trustee Report—Attitudes (A), Knowledge (K) and Actions (A). Kroll is critical of the direction wildlife management has taken over the last quarter century. "I am a dinosaur," he laments, "I represent the last of a long line of game managers." He points out the national trend has been away from the classical training espoused by the father of wildlife management, Aldo Leopold, replaced by emphasis on conservation biology and preservation. "You would be hard pressed to find a deer biologist in today's universities," warns Kroll, "they have been replaced by computer modelers who think working with game animals is beneath them!" Yet, he points out the majority of funds generated by wildlife come from game animals, most notably deer. He feels huge bureaucratic agencies have retreated to centralized institutions, where the field biologist is more an oddity than the norm. "The biggest problem we saw in Wisconsin," he notes, "was a lack of boots on the ground!" Coupled with poor or nonexistent data, he insists the result was ineffective deer management.

The issues could be reduced to three categories; lack of attention to the three legs of deer management (A), lack of good scientific data (K) and scarcity of direct communication with the public (A). Computers had taken the place of boot leather in deer management. Most shockingly was that the quality of scientific data used to support computer modeling was faulty, and in some cases totally lacking. Equally important was the panic and response caused by the appearance of Chronic Wasting Disease (CWD) in southern Wisconsin in 2002, a brain disease similar to so-called "mad cow" disease. Wisconsin spent over $30 million and thousands of staff hours to

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“eradicate” the disease; in spite of the fact no scientific study to date has demonstrated any deer herd declining from CWD, or any human contracting the disease by eating venison. “This ill-conceived, yet laudable effort to eradicate CWD took attention and funding away from deer management for over a decade,” says Kroll, “and, when you add in computerized wildlife management, you have the makings of a real biological and sociological disaster.” The Trustees declared the eradication efforts “unsuccessful.”

Greg Kazmierski owns Buck Rub Outfitters near Milwaukee and early on was one of the most vocal critics of the way the Wisconsin DNR was managing deer. “For well over a decade here in Wisconsin avid deer hunters sensed institutionalized deer management practices were not tracking with their own observations.” Greg points out, “Many factors have influenced this shift in so-called predictability; some were management approaches and some were not.” The greatest issue was use of a simple spreadsheet computer model called Sex-Age-Kill (SAK) to estimate deer numbers. “Trying to accurately estimate how many deer are roaming free on the landscape is the La Brea Tar Pits of wildlife management, “ asserts Dr. Kroll, “there absolutely is no way to do that!” UW

Stevens Point human dimensions scientist, Dr. Robert Holsman, pointed out using SAK essentially was a lose-lose situation, in which the department perpetually was in the trap of trying to defend numeric estimates of deer numbers, then setting population goals for each hunting season based on these estimates. Population estimates based on SAK were judged by independent auditors to be ±123%. That’s right, ±123%! “In other words,” says Kroll, “the DNR was in a position to constantly defend an indefensible number (population goal) that never was attained, which in turn led to frustration by DNR staff and animosity and loss of credibility with the public. The team concluded deer management in Wisconsin was at best, unsuccessful.

Since the Team submitted recommendations in 2012 for turning the situation around in Wisconsin, the situation already shows signs of improvement. The WDNR, using professional and public involvement, developed an implementation plan in 2014 to fix problems identified in the Trustee report. So far, the Trustee Team are impressed with the enthusiasm both by DNR staff and the public in working together to effect change; hopefully saving the rich hunting heritage and traditions of the State. “There still are issues to be worked out,” says Kroll, “but, we have faith Wisconsin once again will become the model for deer management.” He cautions the problems did not arise overnight and they will not be solved quickly. He hopes Wisconsinites will stay the course!

One of the greatest challenges is a significant deer herd decline in the northern part of the State. Kazmierski (now a member of the Wisconsin Conservation Board) warns, “Years of antlerless harvest rates significantly higher than bucks, perceptible increases in predator populations, declining habitat, and higher hunter success rates due to advances in technology and knowledge all contributed. Throw in an outbreak of EHD [epizootic hemorrhagic disease] and a couple hard winters and now CWD appears to be a very small player relative to overall deer mortality.” Kroll continues to admonish WDNR officials and the public they have been

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given a one-time “reset button” to fix deer management. But, what about the other states where deer reside? Do the lessons learned in Wisconsin apply to them as well?

Only recently have states begun to admit their deer populations are declining. Yet, hunters and landowners who are out there on the land knew this fact long ago. One of the best known deer hunting personalities is world class bowhunter, Stan Potts who lives in Illinois, a state hard hit by herd declines. “The 2013 season in Illinois was one of the toughest I’ve seen in a long time!” says Potts, “Two back to back summers of drought causing us to lose an unusual number of deer, and way too many antlerless seasons and antlerless permits on top of drought!!”

Some states have stepped forward and admitted there is a problem, while others support the QDMA position that these are just “normal” adjustments of deer herds to what the habitat will support. “This is a naïve and simplistic interpretation of what is going on out there,” warns Kroll, “biologists are dealing with issues never before encountered.” He identifies several factors that confuse the likelihood that herds will eventually stabilize. First, deer are part of a total ecosystem, in which they serve as the “Keystone Species”-- the one that has the greatest influence on the system. They also are a K-adapted species, meaning their population growth is regulated by the quality of their habitat. Next, deer have a relatively small litter size. A doe normally produces two fawns annually, and is lucky if one survives to one year of age (recruitment). As long as habitats are productive and in the early stages of succession, recruitment is quite high and it takes fewer does to sustain the population. Yet, as herds continue to grow and habitats mature, the number of does successfully recruiting fawns (the effective population) decreases. At this point, it takes more does to achieve sustainable recruitment. “I have walked over thousands of acres of so-called deer habitat in the Midwest,” asserts Kroll, “and all I see are closed canopy forests, with little or no preferred deer food plants!” Kroll also reports his experience is that deer habitats are not going to recovery in the near future.

Forest management in the US has moved from a primary function of producing wood fiber to wilderness management, especially on public lands. In northern Wisconsin, as well as many states, this shift in management philosophy has produced old growth forests, with little productive capacity for deer. In the Midwest, where agriculture is the predominant land use, professionals and laymen alike assert the large acreages of prime deer foods (soybeans and corn) produce an almost infinite supply of deer food. “There are two problems with this idea,” warns Kroll, “first of all farming practices over the last decade have moved more and more to high-tech clean farming and heavy use of herbicides.” He insists that there actually is very little usable deer habitat in the Midwest, represented by small woodlots and “stringers” of timber along drainages. “The reality is deer spread out into agricultural fields during the warm season to feed on crops, then retract to the small amount of true habitat in fall and winter, placing intense pressure on native food plants,” he reports.

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As herd recruitment declines, other controlling factors are complicating the situation; some relatively new to the modern times. Increases in predator populations, notably coyotes, bobcats, wolves and bears, also have become a significant issue for Wisconsin and a growing number of states. “We were amazed to learn that, other than computer models, research on predator population growth and impacts on deer herds were virtually non-existent,” Kroll notes. He goes on to point out only recently have deer biologists become interested in measuring predator impacts. Wisconsin is in the early stages of a comprehensive predator study, which already has identified far higher impacts than previously asserted by deer biologists. According to Kroll and other biologists, mortality in deer is additive rather than compensatory (viz., the population compensates for a mortality factor through reproduction). Annual deer mortality actually is a combined effect of hunting, deer-automobile collisions, weather, predators, starvation and disease. “These mortality agents are additive,” he points out, “any one factor may seem small *per se*, but when added they can be significant.”

Researchers in the western UP of Michigan report that the coyote is the number one predator, followed by bobcats. There is a three-way tie between hunters, unknown predators and “undetermined” causes, followed fourth by wolves. Kroll considers these reports conservative, since when added to winter kill, may represent more than 58% annual mortality in the UP. “Common sense tells you, given these numbers UP deer herds are not sustainable,” he concludes, “no wonder herds are declining!”

In 2010 Wisconsin DNR initiated a predator impact study in the northern part of the state, which took the novel approach of involving the public in data gathering. The Department and an army of volunteers captured and radio-collared 73 yearling males (45 in the north, 28 in the east), 45 adult males (25 and 20), 86 adult females (40 and 46) and 78 fawns (30 and 48) in the first year. Only 27% of fawns survived seven months in the study. Hunter harvest accounted for 38% of mortality, with predation adding another 26% in northern Wisconsin. An earlier 2009 WDNR study estimated that predators in the northern and central forest regions of Wisconsin accounted for half again as much mortality as hunters. “Interestingly enough,” chides Kroll, “earlier computer modeling, using hunter deer harvest data, by UW-Madison biologists on bear and wolf impacts led to a different conclusion. “This early analysis appears to say that impacts on deer populations associated with bears and wolves are clearly minor relative to impacts associated with hunting by humans,” said Dr. Timothy Van Deelen. “This clearly demonstrates the difference between actual field studies and computer modeling,” smiles Kroll. In spite of varying opinions about the magnitude of impacts predators have on deer herds, more and more biologists are becoming concerned. A Journal of Wildlife Management study recently published by South Carolina researchers concluded: “The effects of coyote predation on recruitment should be considered when setting harvest goals, regardless of whether local deer population size is currently above or below desired levels, because coyotes can substantially reduce fawn recruitment.”

The vast majority of white-tailed deer live on privately owned property; yet, Kroll insists state agencies for the most part have totally ignored the role these landowners play in the future of deer herds. Some states have

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initiated Deer Management Assistance Programs (DMAPs) modeled after Dr. Guynn's work in Mississippi, but many state biologists still do not support such programs. "The problem stems from the staunch belief in the so-called North American Wildlife Model by the majority of the wildlife management community," adds Kroll, "and that somehow acknowledging the importance of private landowners is abhorrent to them, not to mention giving landowners more control over deer on their property." The concern is that it is *de facto* privatization of wildlife management. Aldo Leopold, the acknowledged father of American Wildlife Management, dealt with this issue in the 1930s, noting: "Actually game administration in this Country has so far concerned itself almost entirely with two things: regulating abuses by the exercise of its police powers, and attempting to practice management on private lands without the co-operation of the owner. The latter attempt is bound to fail in the long run, because government cannot control environment on lands which it does not own." Again, in spite of being the home of the father of American wildlife management, one of the problems identified by the Deer Trustees was that the WDNR not only had left public hunters out of the management process, but had made no real attempt to help private landowners manage their deer. "It was as if privately owned land and public land were two separate entities," says Kroll. Apparently, not much has changed since Leopold's day.

Although Jacobson and Kroll essentially predicted it would happen, few agencies considered disease to emerge as a significant additive mortality agent. Again, few agencies were collecting adequate herd health data; an activity once considered as an important component of deer management. Even in Texas, where quality deer management began, the Texas Parks & Wildlife Department long ago abolished its Wildlife Disease Unit, at that time one of the best in the country. When chronic wasting disease (CWD) came to public attention in the 1980s (although known from the late 1960s), the reaction went from casual to downright panic! After the international scare created by "Mad Cow Disease," in the United Kingdom, scientists were sensitive to the potential animal and human health impacts of the conditions collectively called Transmissible Spongiform Encephalopathy (TSE). We now understand that CWD does not affect humans and that it probably has been in mule deer, elk and whitetails for perhaps thousands of years. "Yet, in spite of the lack of evidence that CWD is transmissible to humans or represents a significant deer mortality agent, professional biologists have become obsessed with this disease," says Kroll. Deer are beset with a host of diseases, most having little significant impact on herd productivity. In 2010, Kroll predicted two other long-known diseases, Epizootic Hemorrhagic Disease (EHD) and Blue Tongue (BT), collectively referred to as hemorrhagic disease (HD) represented the REAL danger to whitetails, and that HD soon would be decimating herds outside the "normal" range of the disease. Originally thought to be a southern disease, the first known localities for HD were in New Jersey and Michigan. His prediction came true sooner than he thought, as landowners and hunters in the Midwest and West began reporting finding dead deer strewn over the landscape. He even predicted the outbreak in Wisconsin in 2012. Kroll feels deer herds have declined from HD alone by as many as 3 million animals in the last two years. When combined with other factors such as predation and over-harvest, he feels we will see even larger declines in deer numbers.

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Outbreaks of HD generally are cyclic and related to weather conditions. EHD and BT are represented by several strains of viruses vectored by biting midges (gnats) that emerge from mud adjacent to water sources. “The last two years have represented a perfect storm,” says Kroll, “drought conditions and high deer populations have combined to produce one of the most devastating die-offs in many years.” Yet, Kroll asserts most state agencies continue to ignore the impact of these diseases, insisting they are but natural diseases and that herds will quickly recover. “These ideas stem from the old days when herds were on the rapid increase,” warns Kroll, “this is a different world, in which a host of factors (habitat, predators and disease) have an additive impact on deer herds.” Most biologists hope the harsh winter of 2013-14 will mitigate losses by reducing midge populations, but Kroll is not optimistic. “I hope the 2014 HD season is minimal,” he asserts, “but, we are learning more about the ability of midges and the viruses to over-winter.”

Why were agencies caught by surprise when herds began to decline? Kroll lays the blame squarely on what they learned in Wisconsin; the lack of quality data. “The average state agency does not collect data most deer management texts list as critical to sound management decision-making,” he insists, “although private landowners and managers commonly do so.” In the Trustee Report, the team pointed out deer and their habitat are more than “happy” to tell you how they are doing, provided you ask the right questions and collect the right data. “Sadly, if pushed the average deer program leader cannot supply the data to back up management decisions,” Kroll asserts. He also notes there has been a significant trend away from training game managers in colleges and universities. “Studies have shown,” warns Kroll, “that few wildlife professors even hunt, much less are interested in managing species such as deer.”

Dr. Kroll sums up his opinions in a single sentence. “We were so caught up in restoration of the species,” he insists, “that we forgot someday we would have to actually manage deer!” He adds a second thought; as the traditional system began to fail, professionals looked around for something else (CWD, deer breeders, “antler mania,” food plots, feeding, etc.) to blame it on.

What about the future? “Just as the Trustee Report gave Wisconsin a one-time reset button,” warns Kroll, “deer managers also have just one chance to get it right.” To Kroll, we only have about a decade to fix the situation. He suggests a seven point plan. First, professionals have to admit there is a problem, and herd declines are not normal and will not stabilize. They also will have to admit traditional deer management has not been successful, but is better described as almost a century of taking advantage of the rapid population growth related to restoration efforts. Second, wildlife managers, hunters and landowners all will have to acknowledge that deer occur over the landscape, and future management has to consider a landscape approach. Third, private landowners are integral to successful deer management and must be considered by state agencies as such. Fourth, predators and hunters have to be considered together as mortality factors, and each has to be managed as part of the deer ecosystem. Fifth, habitat is the key to successful deer management, and both public and private lands are integral and must be considered as part of a

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landscape approach. Sixth, forest managers must move away from a mentality of how the deer impact the forest to one in which we consider how the forest impacts the deer. Sustainable forest ecosystems support healthy deer herds, and many forests (particularly public) are not sustainable. Seventh, professional managers have to acknowledge that hunters and landowners must be involved in research, data collection and decision-making if deer management is to succeed.

"I honestly think, as we discovered in Wisconsin, the public and many agency biologists are ready for a change," concludes Kroll, "time will only tell."